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quenchable flame which here you have kindled and which here will burn brighter and ever brighter in the coming years to illumine the path of women toward knowledge and wisdom, toward the attainment of the largest and best use of their intellectual and spiritual powers, toward appreciation and enjoyment of the best in life, in literature, in art, in science, in men and women, toward understanding and furthering of the agencies and forces which make for righteousness, peace and the betterment of mankind.

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"THE FRIENDLY ARCTIC"

(Published by permission of the Deputy Minister of Mines, Ottawa).

ANY one who is in the slightest degree familiar with the Arctic, or even with the history of Arctic expeditions, must have been amazed at the naïve review of Mr. Stefansson's book, "The Friendly Arctic," that appeared in the March 24 issue of *SCIENCE* for the current year. The writer of that review, Professor Raymond Pearl, admits that he is "in no wise a specialist in either geography or polar exploration." One may be permitted to wonder why he undertook the task of reviewing a book that is mainly concerned with those topics. His review, indeed, would be unworthy of serious notice were it not for the wide circulation of the journal in which it appeared; but on that account a reply seems called for.

The reviewer states that the importance which the history of science will attach to Mr. Stefansson's work will rest primarily on his application of a "new and strictly scientific method" to the problem of Arctic exploration; for, whereas earlier explorers depended for food, heat, shelter and clothing mainly on the supplies which they took in with them, Mr. Stefansson, acting on scientific principles, "carried through, over a long period of time [nearly five years, we are told in another place] and a wide range of area, travels in the polar regions, living entirely off the country as the Eskimos do."

Now this statement is unjust not only to earlier explorers, but to Mr. Stefansson himself. The practice of living off the country is *not* a new one in polar exploration. To quote but one example: Dr. John Rae, in 1846-7, supported himself and his party for a whole winter in Repulse Bay, although their only weapons were old, muzzle-loading guns. The method is really a very satisfactory one for a quickly-moving traveler who can choose his own hunting-grounds (*e. g.*, David Hanbury in 1902), and even for a small stationary party in certain well-favored regions; it is rarely satisfactory in the case of a large party working for any length of time within a prescribed area, because the game supply rapidly becomes exhausted. Hence the necessity for bases, and caches of food, employed not only by both the northern and southern parties of the Canadian Arctic Expedition, but by all polar expeditions. Every reader of Arctic literature knows that while game may be plentiful in certain places and at certain seasons, it is very scarce in other places and at other times of the year. All explorers, therefore, including Mr. Stefansson, have been careful to take supplies with them whenever possible, whether they are traveling by ship or by sled, in order to have something to fall back upon when the local supply of game fails. To do otherwise would be the sheerest folly. To take an example. One of the almost gameless areas in the north at the present time is the long stretch of coast between Barrow and the mouth of the Mackenzie River during the winter months; caribou are exceedingly scarce in this region and seals difficult to procure *except* in the spring and summer. Mr. Stefansson, during his last expedition, spent nearly a year in this portion of the Arctic, but, despite his reviewer, he does *not* claim to have lived off the country at this time, or even to have attempted to do so. He will probably himself admit that from September, 1913, when he first landed from his ship, the *Karluk*, until March, 1914, when he started on his ice trip, his rifle did not secure him a single meal. Similarly, on his exploration trips in the northern archipelago, where game is more plentiful than in most places, he prudently carried on his sleds all the supplies he

could, as is shown by his statement of what he intended to carry on his *second* ice journey in 1915:¹

I shall start about Feb. 15 with 2 sleds and 3 men beside myself . . . Fortunately our dog-feed is ready where we dried it at Norway Island—it will be dried caribou meat, caribou fat and blubber. *Our own grub will be chiefly rice, fat and sugar. We also have 50 pounds of malted milk, 50 pounds pea-meal and over 200 pounds pemmican . . .*²

The reviewer, being absolutely ignorant of the true conditions of polar travel, has uncritically taken certain general statements made by Mr. Stefansson about his living off the country and its advantages as an actual fact that occurred, not merely at certain times and in certain places, but invariably throughout the whole five years of the expedition. Mr. Stefansson, with better knowledge of the conditions that he would be called upon to face, wisely provided himself with three vessels loaded with all the necessary supplies of pemmican, sugar, rice and other foods.

There is also another side to this question of living off the country which seems totally unknown to the reviewer. It involves the destruction of entire herds of caribou and musk-oxen, males, females and young. On Melville Island, one of the largest islands in the north where musk-oxen are still found, Mr. Stefansson and his companions killed, on their own estimate, about one tenth of the total number of musk-oxen (400 out of an estimated 4,000).³ One can easily imagine how long the supply of game would last under these conditions. The musk-oxen have already been almost exterminated on the mainland of America and in

Greenland; on Victoria and Banks Islands they were destroyed by the Eskimos prior to 1913, and the only places where they still remain in any numbers are Ellesmere Island and a few smaller islands adjacent to it. The caribou too have seriously diminished in numbers; their extinction around Coronation Gulf is well within sight even now, although in 1913 they could be counted there by thousands.

The cautious reader, then, will hardly accept the reviewer's extravagant claims for this so-called "new and strictly scientific method" of polar exploration. Another of his statements, equally false, demands more serious attention. He says:

In point of fact a considerable number of the members of his [Mr. Stefansson's] expedition, logically excogitated the matter and came to the conclusion that in holding such views [*i. e.*, feasibility of living off the country] Stefansson was not merely silly but probably also insane, and in consequence felt justified in (a) disobeying his orders as commander of the expedition, (b) in refusing to render him any aid (*cf.* pp. 114-115 regarding chronometers), and (c) in actively hindering his preparations and subsequent operations. Now no really scientific man would endorse unsubstantiated charges without considering whether there might not be another side to the question. A few official documents will show that there is another side. The three principal charges made by Mr. Stefansson in his book are:

Charge I.—Attempted mutiny, insubordination and disobedience at Collinson Point, 1914. Dr. Anderson, it is alleged, refused to supply the stores and equipment necessary for Mr. Stefansson's ice trip, and the topographers deliberately withheld chronometers that he needed ("The Friendly Arctic," Ch. XII).

The official orders issued to Mr. Stefansson by the Department of Naval Service before the expedition left Esquimalt, B. C., in 1913, read as follows:⁴

The first party, headed by yourself, will explore the Beaufort Sea, and the unknown waters in that vicinity. The second party, under the direction of Dr. Anderson, will busy itself with the scientific work in the extreme northern land of Canada . . .

⁴ Copy of orders on file at the Department of Mines, Ottawa.

¹ Copy of letter on file at the Department of Mines, Ottawa.

² The italics here and elsewhere are mine. The pemmican was the Underwood man pemmican. From the amount Mr. Stefansson carried with him on this occasion he must have rated its food value somewhat higher than would appear from his book (See "The Friendly Arctic," pp. 718f.).

³ Testimony of S. T. Storkerson before the Royal Commission appointed May 20, 1919, to Investigate the Possibilities of the Reindeer and Musk-ox Industries in the Arctic and Sub-Arctic Regions of Canada.

The relative importance for this party is as follows: (1) geological, (2) geographical, (3) anthropological, (4) biological, (5) photographic. *The chief of the Southern Party, as executive head, must afford every facility as circumstances permit to enable these sub-parties to carry out the above important work.*

The Summary Report of the Geological Survey of Canada for 1913 contains the following statement by the director (p. 9):

Scientific work within the scope of the Geological Survey was placed *under the jurisdiction of the Survey*. The expedition was divided into two parties, the northern exploration party under Mr. V. Stefansson, the leader of the expedition, and a southern scientific party under Dr. R. M. Anderson of the Geological Survey, whose field of operation was to be in the neighborhood of Coronation Gulf, Coppermine River and Victoria Land. [After naming the officials of the Survey who were on this southern party the director continues:] *The officers of the Survey are working under the direction of and reporting to the Geological Survey.*

From these official documents it is clear, (a) that the Southern Party was working on a definite program outlined by the Geological Survey, and (b) that its leader, Dr. Anderson, was responsible for providing it with all the necessary facilities in the way of food supplies, sleds, dogs, etc.

The old whaling steamer *Karluk*, which was to be used by Mr. Stefansson for his northern explorations, was caught in the ice in August, 1913, carried away towards the coast of Siberia and crushed in the following January. It had carried not only the whole of the Northern Party and its outfit, but much of the outfit of the Southern Party as well. The former was completely broken up by its loss, while the Southern Party, though nearly intact as far as personnel was concerned, was left inadequately equipped for its work in Coronation Gulf. Dr. Anderson, its leader, holding himself responsible for the carrying out of that work in accordance with the government instructions, refused to cripple his party any further for the sake of Mr. Stefansson's ice trip, or the formation of a new northern party. The topographers, for their part, were faced with two alternatives by Mr. Stefansson's demand for their chronometers; they could either hand them

over, leave the expedition and return at once to Ottawa (for without their chronometers they could do nothing) or else refuse to give them up and proceed to carry out their work as originally planned. In view of the fact that their department had attached them to the expedition solely for the work in Coronation Gulf and had issued precise and detailed instructions to them concerning it, the topographers decided that it was their duty to retain their chronometers and carry out the orders of their department to the best of their ability. The question at issue was *not*, as both Mr. Stefansson and his reviewer state, whether the members of the Southern Party accepted Mr. Stefansson's views about living off the country (land or ice), or considered them "silly and insane," but whether the work outlined for the Southern Party was to be seriously curtailed in order to equip Mr. Stefansson's new party with scientific instruments, large quantities of condensed provisions and other supplies. Had the Southern Party consented, it could not have carried out its own program. The government sustained its action on receiving the full reports; even before their receipt it sent the following despatch, which reached Herschel Island in July, 1914:⁵

Department of the Naval Service,

Ottawa, 30th April, 1914.

V. Stefansson, Esq., Commander, Canadian Arctic Expedition (Northern Division), Herschel Island, via Athabasca Landing.

Sir:

With reference to the plans for a northern expedition during the coming summer

I have discussed with Mr. Brock⁶ your suggestions for the movements of the men and ships this summer and the matter has been submitted to the minister with result that it has been decided that, should the *Karluk* and the men on board not be available for work this spring, it will mean that you will find yourself with the southern party practically intact and with two small vessels besides the motor launch and smaller boats. Under these circumstances it is considered that it would not be wise to break up the Southern Party and take some of its members for northern exploration.

⁵ Copy on file at Department of Mines, Ottawa.

⁶ R. W. Brock, then deputy minister of mines. See "The Friendly Arctic," p. 380.

Such a division of forces would probably defeat the object of sending out the Southern Party by weakening it and the results to be obtained by the exploration of Banks Land and Prince Patrick Island would not compensate for the sacrifice.

It has therefore been decided that the Southern Party should as far as possible be kept intact and that the program laid out for it should be carried out as far as circumstances will admit.

Your proposal that you should lead a northern party along the coasts of Banks Land and Prince Patrick Island is approved and you are authorized to engage the men of whom you spoke as being available for this expedition. Details of the arrangement must necessarily be left to you and will depend largely on developments in the Arctic regions. *But the main point to be borne in mind is that the work of the Southern Party should be carried out as originally proposed and that it should not be weakened for the purpose of organizing another northern party.*

Yours truly,
(Signed) G. J. DESBARATS,
Deputy Minister

Charge 2.—Dr. Anderson, the leader of the Southern Party, is accused of failing to forward to the government a copy of a very important letter of instructions from Mr. Stefansson outlining his plans and projected movements during and after his ice-trip of 1914 and to inform the press of Mr. Stefansson's movements ("The Friendly Arctic," p. 382).

Mr. Stefansson is clearly in error. Dr. Anderson forwarded copies of this letter by the first mail to the Department of the Naval Service and to the Geological Survey, Department of Mines. The copy sent to the Department of Mines is still on file in that department; that sent to the Naval Service was acknowledged by the deputy minister of the Naval Service, a copy of which acknowledgment is also on file in the Department of Mines.⁷

Charge 3.—Dr. Anderson is accused of disobedience in the summer of 1914 because he failed to send the schooner *North Star* to Banks Island, as ordered by Mr. Stefansson. The *North Star*, Mr. Stefansson states, was bought especially for the explorations around Banks Island, the schooner which was actually sent there, the *Mary Sachs*,

being unsuitable for the work ("The Friendly Arctic," pp. 271-2).

Now on March 10, 1914, six days before setting out on his northern explorations and nearly three months after the purchase of the *North Star* ("The Friendly Arctic," p. 103), Mr. Stefansson gave the following instructions to Dr. Anderson:⁸

The work of the *Mary Sachs* as planned at present has two main objects—(1) the carrying forward so far as resources permit of the scientific and exploratory work of the *Karluk* and (2) establishing beacons and depots along the west coasts of Banks and Prince Patrick Islands against the possible landing there of either shipwrecked men or exploration parties from the *Karluk* . . .

A supply depot for the Southern Party shall be established from a portion of the supplies bought from M. Anderson [a local trader]. The *North Star* shall take these to some place agreed upon that is uninhabited and therefore safe—probably Liston Island—and leave them there to be picked up later by the *Alaska*. After that the *North Star* shall go about work later to be decided upon—probably either oceanography or establishing a depot on the west coast of Banks Island for the *Sachs* or against the possible arrival there of men from the *Karluk*.

Evidently Mr. Stefansson at this date considered the *North Star* less suitable than the *Mary Sachs* for his northern explorations. This is hard to reconcile with his statement ("The Friendly Arctic," p. 272) that "the *Star* was purchased especially for the Banks Island trip and the *Sachs*, through her twin propellers, was particularly badly suited to those more northerly and icy waters."

In his later instructions ("The Friendly Arctic," p. 158; the letter is dated April 6) Mr. Stefansson ordered both the *North Star* and the *Mary Sachs* to proceed to Banks Island. Dr. Anderson sent the *Mary Sachs* alone with a launch, for the following reasons:

(a) One of these schooners was required to carry the supplies of the Southern Party to Coronation Gulf. Mr. Stefansson had already issued orders to this effect.

(b) The *Mary Sachs* was the larger vessel, and Mr. Stefansson's original choice.

⁷ See also Dr. Anderson's despatches to *N. Y. Times*; of May 16, 1914, published September 1; August 21, published September 23; and September 14, published March 5, 1915.

⁸ Copy of letter on file in the Department of Mines, Ottawa.

(c) The *Mary Sachs* was sanctioned by the government for the Banks Island work, the *North Star* was not. [A copy of the instructions sanctioning the *Mary Sachs*, dated Ottawa, 5th May, 1914, is on file in the Department of Mines.]

(d) News of the *Karluk's* crew having reached Wrangell Island made provision for them on Banks Island unnecessary.

(e) Where orders were too contradictory to be reconciled, it was considered more ethical to follow out the carefully considered plans of the government.

The reviewer of Mr. Stefansson's book was unaware, of course, of all these documents; but a sense of justice and the exercise of a little critical acumen should have saved him from accepting Mr. Stefansson's charges at their face value. The real value to be placed on them, as well as on other statements made by Mr. Stefansson, the reader can determine for himself in the light of the documents quoted above.

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SCIENTIFIC EVENTS

PASTEUR AS DRAMA¹

Pasteur is the title of the play with which M. Lucien Guitry, the eminent French actor, has this week opened his repertory season in London. The piece, which was played last year in London on a few occasions by M. Guitry, was first produced in Paris in 1919. It no doubt owes something to the successful production in this country of *Abraham Lincoln*, for both plays depict a great man in selected scenes at different periods of his life. The author of *Pasteur* is M. Sacha Guitry, son of the actor, who admittedly found his inspiration in Vallery-Radot's biography of Pasteur, and designed the play especially to suit the talents of his distinguished father. The first act shows Pasteur in his study with his pupils at the outbreak of the war of 1870. In the second act there is a moving representation of a meeting of the Academy of Medicine, where Pasteur vigorously combats an attack upon his theories, in this scene the audience plays the part of the members of the Academy, with one or two actors speaking from the stalls. In the third

act the boy Joseph Meister, who has been bitten by a mad dog, is brought to be inoculated by Pasteur, who sends for a doctor to perform the inoculation, for Pasteur himself held no medical qualification. The dramatist shows his art at the close of this act, for Pasteur, although he knows he can give no help, stays on all night in case something unexpected may happen. The scene changes in the fourth act to Pasteur's home in the country, where he is ill and on the verge of a breakdown; his friend the doctor tries to persuade him to take a rest, but Pasteur is deeply engaged in the study of epilepsy and cannot tear himself away. To him comes again Joseph Meister, now a youth, and a delightfully sympathetic scene ensues between the two. The last act is the crown of Pasteur's career, his reception by the president of the republic in the amphitheater of the Sorbonne, crowded by his friends, among whom is Lister, whose name is announced, although he does not actually appear on the scene. The play has no "love interest" and no female character, and follows no dramatic rules; it is practically a series of monologues, in which the actual words of Pasteur are often used, and its only unity is in the portrayal of its chief character. It is a triumph for M. Lucien Guitry, who appears to live the part of the simple, unaffected, kindly man of genius.

FOREIGN STUDENTS AND THE FEDERAL IMMIGRATION LAWS

EXEMPTION of bona fide foreign students from the operation of the present immigration law is urged in a resolution adopted recently by the executive committee of the American Association of University Professors. The resolution states:

Whereas, The omission to exempt bona fide students desirous of entering American institutions of learning from the operation of the present immigration law is probably due to inadvertence, inasmuch as such students are expressly exempted from the operation of the Chinese exclusion act and the agreement with Japan;

Whereas, the actual operation of the immigration law has been attended with such deplorable annoyance to incoming students as to lower the prestige of the United States as a center of education;

¹ From the *British Medical Journal*.